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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,696	12/11/2003	Charles L. Gray JR.	EPA 686-04	8653

7590 08/26/2005

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EXAMINER

GIMIE, MAHMOUD

ART UNIT	PAPER NUMBER
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3747

DATE MAILED: 08/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

5/12

Office Action Summary	Application No.	Applicant(s)	
	10/733,696	GRAY, CHARLES L.	
	Examiner	Art Unit	
	Mahmoud Gimie	3747	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 21 June 2005.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-29 is/are pending in the application.

 4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-12, 17-23 and 27-29 is/are rejected.

7) ☒ Claim(s) 13-16 and 24-26 is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

 a) ☐ All b) ☐ Some * c) ☐ None of:

 1. ☐ Certified copies of the priority documents have been received.

 2. ☐ Certified copies of the priority documents have been received in Application No. _____.

 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3 and 6-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Ancimer et al (6,640,773).

Ancimer et al discloses an internal combustion engine operable in homogenous charge compression ignition mode, comprising: an engine body with a plurality of combustion cylinders formed therein; combustion chamber formed in each combustion cylinder for combustion of a fuel and charge-air mixture; combustion parameter determining means for determining values of one or more combustion parameters (fuel quantity or injection duration, fuel timing, intake air temperature, EGR temperature, intake manifold pressure) of said combustion; engine operation control means for adjusting one or more engine operating parameters (speed, air flow, compression ratio, valve timing) to change one or more combustion parameter (fuel quantity or injection duration, fuel timing, air temperature etc) values for subsequent combustion events; and combustion control parameter control means , programmed to adjust combustion control parameter values (memory update) responsive to said changes in said combustion parameter

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values, or in response to said engine operating parameter adjustments, and to limit or counteract changes in said combustion parameter values while one or more engine operating parameters are being adjusted by the engine operation control means, see column 12 and line 56 , and columns 13 and 14 with reference to figure 4.

With regard to claim 2, wherein the combustion control parameter is fuel quantity, col. 14, ll. 4.

With regard to claim 3, wherein the combustion controlling parameter is intake charge-air temperature, col. 14, see list.

With regard to claim 6, additionally comprising means for recirculation of hot high pressure exhaust gas to increase the intake temperature of the charge-air for combustion, see column 14 and item (g) on the list.

With regard to claim 7, wherein the engine operation control means adjusts one or more engine operating parameters individually for each combustion cylinder, see adjust(s) and corrective actions in column 14 and lines 1-9.

With regard to claim 8, wherein the intake temperature (item c in the list) of the charge-air is determined and adjusted for each combustion cylinder individually.

With regard to claim 9, wherein the intake pressure of the charge-air is determined and adjusted for each combustion cylinder individually, column 14.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4,5,10-12, 17-23 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ancimer et al (6,640,773).

Ancimer et al discloses all the limitations as applied to claims 1-3 and 6-9 above, except for such parameters as oxygen concentration and chamber wall temperature. However, Ancimer et al teaches that the measurement system may optionally provide additional data, column 12 and line 66.

Therefore, at the time the invention was made; it would have been an obvious matter of design choice to a person of ordinary skill in the art to optionally use such parameters as oxygen concentration and cylinder wall temperature because applicant has not disclosed that doing so provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, further, would have expected applicant's invention to perform equally well with the invention of Ancimer et al because it provides a method and an apparatus for controlling combustion in an engine. The motivation to do so would have been to optionally provide additional control parameters for the control system to improve the accuracy of the control system with additional input parameters.

Allowable Subject Matter

5. Claims 13-16 and 24-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments filed 6/21/05 have been fully considered but they are not persuasive. Applicant argues that the examiner incorrectly points out to fuel quantity, intake air temperature, EGR temperature and intake manifold pressure as "combustion parameters" monitored by Ancimer (U.S. 6,640,773) contrary to applicant's use of the term "combustion parameters" in the claims and specification, which refers to characteristics such as timing, duration or combustion rate.

This is not persuasive because at least determining fuel injection "duration" is synonymous to determining fuel quantity. Further Ancimer determines/controls fuel timing (col. 11, ll. 26) and additional parameters that are comparable that are consistent with applicant's use of the term.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mahmoud Gimie whose telephone number is 571-272-4841. The examiner can normally be reached on Tuesday-Friday between 7 a.m. -3:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Yuen can be reached on 571-272-4856. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MG

 8/24/25
MAHMOUD GIMIE
PRIMARY EXAMINER